

an innovative vision
for the **fall creek** streamfront

: redefining the indiana state fairgrounds

[a comprehensive project]

NICK TROHA





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college of architecture and planning
department of landscape architecture

instructors: CHRIS MARLOW and JOHN MOTLOCH
faculty advisor: BO ZHANG
fall creek mentor: DOUG DAY



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: to my advisor BO ZHANG for continuously challenging me to go further every single time that i thought something was finished.

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abstract

“Science is discovering that which is. Design is creating that which has never existed.” -- Anonymous

Designers hold the power to shape and alter human interaction with their environments, whether that refers to the landscape or what is perceived as the separate, yet associated structures. Being able to envision these landscape and structured spaces as integral, without distinction, is the lens that this project advocates. Focusing on the stream corridor of Fall Creek, the setting of this project converges in a unique situation of intense urban conditions meeting a fairly untouched ecological zone. To create a tangible concept, this thesis extends its vision towards urban ecology to design for the community a network of landscape and structured spaces, which provide new public amenities and functions to build on the existing infrastructure of Fall Creek. Urban ecology is a catalyst to fuse science with design. This approach does not implicate the end solution to a problem. Rather, it proposes a beginning to creating new and innovative design principles.

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introduction

Fall Creek is a historically and culturally rich area of opportunity, located on the northeast side of Indianapolis, Indiana. The urban infrastructure of this community revolves around the Indiana state fairgrounds, which is directly adjacent to the specified site. At approximately 38th Street and Fall Creek Parkway, this site spans over an area of 83 acres, from the Monon Trail to Keystone Avenue. A beautiful and ecologically rich stream corridor is juxtaposed within the urban conditions of Fall Creek:



As a way of better utilizing this natural setting within the context of Fall Creek’s urban infrastructure, this project proposes an expansion of George Kessler’s original vision for Indianapolis’ Fall Creek Parkway. In the form of an addition to the Indiana state fairgrounds, this project assessed the existing amenities of the fairgrounds, which are mostly focused on agriculturally and consumer based functions in an urban setting. To add and build on these amenities in a more naturalized setting, this project planned and designed a community network of landscape and structured spaces that cater to a variety of functions: interpretive, contemplative, innovative, sustainable, passive, active, and educational. This community network provides people a new set of possibilities branching off of the fairgrounds.

In order to achieve this community addition, natural processes were used as inspiration to develop the principles that connect landscape with structure, and urban with ecological. The streamfront of Fall Creek’s natural corridor can experience new viewpoints and functions in this proposed system of spaces.

the problem and its setting

This project focused on fusing architecture and landscape architecture through the use of urban and ecological principles. The Indianapolis Fall Creek corridor and state fairgrounds site can experience a network of landscape and associated structured spaces integrated along the urban and ecological borders of the stream. Specifically, this determines design possibilities for an innovative community infrastructure that enables a riparian-edge addition to the state fairgrounds and creates connections to the surrounding community.

- 1 How can urban and ecological systems be utilized to design a community network of landscape and associated structures?
- 2 How can an innovative community infrastructure along the Fall Creek riparian edge provide a community addition to the state fairgrounds site?
- 3 What features can be included to successfully connect the proposed design network and the surrounding community to the Fall Creek site?
- 4 What are sustainable, innovative strategies along urban waterfronts similar to Fall Creek?



figure [1.2]

the literature review

Indianapolis’ Fall Creek stream corridor has a unique set of conditions that make it a great place for an innovative design concept. Throughout this research, specific concepts were explored in understanding how a community network can be integrated along the riparian edge corridor. The specific functions of the community network are both built and landscape infrastructure that becomes an addition to the existing functions of the state fairgrounds.

The fairgrounds host an array of events that entertain hoosiers while displaying Indiana’s culture and history; but these events do not include one important piece of Indiana’s past – it’s rich natural environment (now mostly converted to other land uses). Coincidentally, a rich natural environment rests adjacent to the fairgrounds along the Fall Creek stream. This is an opportunity to expand on the existing functions of the fairgrounds and create an addition along the stream corridor that can house activity in one of Indiana’s natural ecosystems. The spaces throughout the pedestrian network range from active and passive recreation branching off of the existing greenways, interpretive and contemplative spaces, educational functions, experimental structures and landscapes emulated from nature, and simply spaces from which to view and enjoy the natural setting. This design concept needs to be intimate with the riparian edge landscape of Fall Creek, which can be achieved through emulating nature in a pedestrian network of structure and landscape.

1 integration of an urban ecological environment

I How can urban and ecological systems be utilized to design a community network of landscape and associated structures? I

Introduction

This research is intended to assess the fields of urban and ecological design as it relates to the urban landscape settings for Fall Creek. The Fall Creek site currently hosts a unique mixture of intense urban conditions adjacent to a rather untouched ecologically rich stream corridor. Discovering how the two can transition between each other is the driver for introducing a design emulated from nature. Integrating this urban ecology into the existing Fall Creek infrastructure has been identified as a significant theme of the research and the driver for the design.

“Go, take your lessons from nature, that’s where our future lies.” – Leonardo da Vinci

Urban Characteristics and Distinctions

The Fall Creek River is no stranger to the growth of northeastern Indianapolis. The natural ecosystem of the stream and all of its components have undergone transformation along with the ever-expanding urban ecosystem around it; and with transformation comes the potential of developing a symbiotic relationship between these natural and urban systems. To truly understand the potential that lies in the site, it is important to first understand the distinctive design principles the project will utilize, such as urban design principles. The term urban design was first coined in the 1950s, yet it still lacks clarity. It has taken on many forms in the course of its history, and most of the time it seems to be somewhat vague. Some definitions such as “everything you can see out of the window” and “the space between buildings” suggest an extremely broad array of municipalities. Other definitions seem more plausible. Urban design is “the creative activity by which the form and character of the urban environment at the local scale may be devised” and “the physical design of the public realm.” These definitions give some character to the situation, yet they still seem ambiguous. They rely strictly on anthropological design theory. (Palazzo 1-2)

With a greater emphasis on the ecological issues that lie within urban design, Ali Madanipour proposes a synthesis that enlightens both the urban and ecological realm as it pertains to spatial elements. To quote Madanipour: “Urban design can be defined as the multidisciplinary activity of shaping and managing urban environments, interested in both the process of this shaping and the space it helps shape. Combining technical, social and expressive concerns, urban designers use both visual and verbal means of communication... urban design is part of the process of the production of space.” This synthesis provides a comprehensive view on the importance of the anthropological realm in urban design, but also the spatial elements that are so often overlooked. (Palazzo 2)

Design and Ecology for Urban Settings

The previous analysis of urban design concluded that we design spaces for the multidisciplinary human realm and that the ecological and spatial realms are often overlooked. The urban environment is constantly adapting to the needs of humans, just as natural environments are constantly adapting to the needs of the ecosystem. With this in mind, the Fall Creek site advocates the inclusion of urban ecology as a component of urban design, thus urban ecological design. Urban ecology involves understanding the

nature of a city and integrating humans and nonhumans in a biological and functional manner. For instance, a tree can store carbon and also shade a streetscape. While strictly focusing on urban design can often fragment the usefulness of biological elements, urban ecology can be implemented as an integral field to increase the reciprocal relationships of organisms with their environments, or in this case, with urban settings. (Palazzo 1-9)

The existing parallels of urban design and ecology suggest that the urban setting is a hybrid phenomena – they are driven by human and biophysical processes. Urban ecological design can express the way ecological systems evolve together in urbanizing regions. But how can urban design be truly transformed into urban ecology? The best example of multidisciplinary parts uniting together into a successful design is the ultimate design – that of nature. By emulating the design of natural processes, urban ecological design becomes feasible. Integrating ecology can be utilized as a design philosophy in urban settings, and ultimately, it can be fused into a tangible infrastructure for the Fall Creek network of human and ecological components.

2 addition to the state fairgrounds

I How can an innovative community infrastructure along the Fall Creek riparian edge provide a community addition to the state fairgrounds site? I

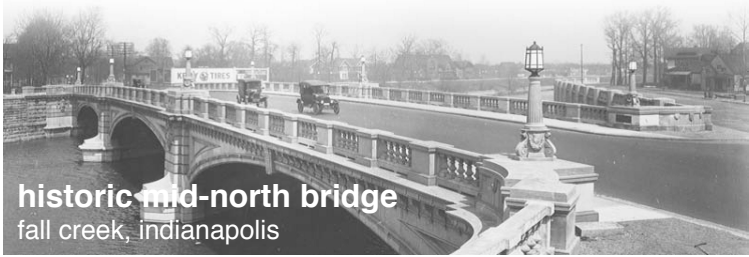
Introduction

This research is intended to gain a better understanding of the ways in which an additional space to the state fairgrounds could be beneficial to a community. It will first observe the history of Fall Creek as a precursor to the future implications of becoming an amenity to the existing functions of the area. These current functions, including the Indiana State Fairgrounds, will be evaluated to determine opportunities and constraints of adjacent areas. After evaluating these past and current functions, implications of the future of the Fall Creek streamfront will be analyzed.

fall creek history

Origination, Characteristics, and Development

There is much more to Fall Creek than just a riparian stream corridor. Outside of these banks, there is a rich history throughout the Fall Creek community, which wasn’t always known as Fall Creek. In 1843, a community called Sugar Grove made up the northern



boundary of what is now Fall Creek. What started as a small church community evolved into Mapleton in the 1850s, with commercial and residential developments sprouting up here and there. By the 1880s, Mapleton was known around central Indiana as a popular watering place for horses traveling between Broadripple and Indianapolis. By 1891, the most significant addition to Mapleton-Fall Creek would arise. The Indiana State Board of Agriculture

purchased a large farm bordering Fall Creek Parkway and 38th Street to relocate the State Fairgrounds, and it still stands there today. From that point on, the Mapleton-Fall Creek area became part of the expansion of Indianapolis, experiencing sprawl in every direction and land being filled in with homes. (Berkson)

Fall Creek Parkway, the road adjacent to the Fall Creek riverfront, was designed specifically as a scenic boulevard. Along with the rise of the automobile, Mapleton-Fall Creek would become the place to live. Throughout the early 1900s, 78 single-family mansions would become a spectacle of Fall Creek along with 27 luxury apartments and many summer homes for fortunate families; and beautiful bridges were built to ease the transition for the car to access this rising area. (Berkson) As any historic neighborhood experiences at some point, the 1940s brought a period of decline for the great Fall Creek community. The well-to-do families that once inhabited the area continued their never-ending migration to newly developed areas, leaving Fall Creek with an excess of large, stylish homes. Today, the spirit of the once thriving area lives on through revitalization of run-down spaces as well as continuation of well-kept spaces. (Berkson)

As mentioned previously, the site of the Indiana State Fairgrounds was relocated to Fall Creek in 1891 and is still held there today. These new grounds include 72 buildings, a 6000-seat grandstand, and one-mile racetrack. The State Fair is the ultimate display of Indiana’s culture – it houses agricultural/farming advancements, events that attract people from all over the state, and entertainment that people look forward to throughout the year. This piece of the Fall Creek community has stayed alive for over 100 years. It still stands as an important piece of culture for all of Indiana to enjoy. (Paul) The fairgrounds offer a variety of public amenities and functions ranging from agriculturally based functions, sporting events, concerts, consumer-related activities, and seasonal events. This array of amenities offers an opportunity to expand into the more naturalized setting of the Fall Creek stream corridor.

keeping fall creek alive

An Addition to the State Fairgrounds

The State Fairgrounds are a great way to experience the rich culture of Indiana, and Fall Creek is a great place to house it. But Indiana and the Fall Creek community continue to grow, and the eminent need of expansion continues to drive this area into the future as a catalyst for design possibilities. Along with the decline of Mapleton-Fall Creek in the 1940s comes resurgence in modern times. This effort should include innovative strategies that identify areas for improvement and also utilize the best aspects of the existing infrastructure.

So what are the best aspects of Fall Creek that live on today? What are problematic features that offer opportunity for improvement? Some notable characteristics of the area still thriving today are the Fall Creek waterway and, of course, the State Fairgrounds. These two features should become points of focus that drive the perpetuation of advancement for Fall Creek. The form of these two focal points should also evolve into an integral infrastructure that utilizes the streamfront as a piece of the state fairgrounds. In between these two points is where there is opportunity for connections that could create this infrastructure. The Fall Creek Greenway and Monon Trail systems conveniently meet up along the streamfront of Fall Creek. The fragmented nature of all these features offers the ultimate opportunity for a holistic infrastructure of the state fairgrounds, streamfront, and existing trail system. The State Fairgrounds exist as an historical area still thriving, the river exists as an untouched and underutilized function, and the greenways exist as a great opportunity that can bring them all together. This is what the Fall Creek community needs to continue their resurgence, and this identified opportunity justifies the creation of an urban waterfront as a community addition to the Indiana State Fairgrounds.

Innovative Riparian Streamfront

After examining the culture and history of the Fall Creek area, the identified design prospect becomes the development of the streamfront as a community addition to the state fairgrounds that expands on the existing amenities and functions. This is the opportunity to make an impact on the cultural and historic significance of the Fall Creek community. The banks of the stream that were once known as the watering place for horses in the Indianapolis area can become something much more. This is a place that holds natural beauty, well hidden in the looming shadows of buildings that house the state fairgrounds. By designing this site as an innovative

streamfront, an alternative community network can supply Fall Creek with the vision it needs to continue moving forward.

Thoughts

The history and cultural significance of the Indiana State Fairgrounds has been synthesized throughout this section of the research. The next areas of focus identified were the Monon/Fall Creek greenways and the Fall Creek streamfront. In the forthcoming sections of the research, these two functions will be analyzed thoroughly as opportunities for the ultimate design of a community network that serves as an addition to the state fairgrounds. In specific, the urban ecological design principles, addressed in section one titled Integration of an Urban Ecological Environment, will be further analyzed as a modern design strategy that encompasses this vision of an urban waterfront.

3 creating connections

I What features can be included to successfully connect the proposed design network and the surrounding community to the Fall Creek site? I

Introduction

This research begins to analyze the needs for improving the connections of previously discussed functions within Fall Creek as a basis for justifying a streamfront infrastructure. It observes the existing functions and systems of transportation around the area, comparing and contrasting to similar systems. Synthesis of this data lead to the development of a program of existing uses and identified opportunities for improving the available pedestrian and bike spaces in relation to the car. Ultimately, this program is directly correlated with improving the connections to and within the Fall Creek site.

fall creek urban functions and areas

Transportation

Much development has occurred in the surrounding area of the Fall Creek waterway. Since the rise/decline of the Mapleton-Fall Creek community and the introduction of the State Fairgrounds, roads and cars have become a dominant feature of transport around the area. The specified site sits on the intersection of 38th Street and Fall Creek Parkway. 38th Street is a very highly trafficked street

with three lanes going both ways, as well as turn lanes, making it very wide and difficult to cross on foot. The State Fairgrounds are accessed from this road, so there are seas of parking lots lining it. Fall Creek Parkway intersects 38th Street, and is also highly trafficked. This Parkway runs parallel to the river, and the side opposite the river is lined with beautiful mansions that were once the hot spot of Indy’s elite in the early 1900s.

Much of the land use in this area is dedicated to residential homes. This factor plays a role in justifying the need to improve the Fall Creek system of transportation. The current system of transportation does not allow for pedestrian accessibility, and the addition of a new pedestrian attraction along the waterfront (along with the state fairgrounds) also substantiates the need to improve. This dominance of the car provides a potential to refocus this hierarchy by creating a network of accessible pedestrian areas and trails interconnected by greenways.


Trails and Greenways

The primary trail focused on was the Fall Creek Greenway. It runs parallel to the waterfront and Fall Creek Parkway, and it connects with key locations surrounding the site. It is a quiet trail, occasionally brushing against the water. In total, the trail runs 6.9 miles from eastern Skiles Test Nature Park to the western Monon Trail, and there are plans for future expansion. This becomes key in ensuring the connectivity of the Fall Creek site to adjacent functions, and there are some points in the existing trail that are problematic. The Fall Creek Greenway hits a snag when it transitions from the eastern side of 38th Street to the western. Not only does it cross this extremely wide and highly trafficked street, but it also crosses the bridge over the waterway. The existing system is interrupted at this point, with only some small sidewalks on either side of 38th Street to help pedestrians cross to the western side and continue on the greenway. This proves to be a vital section of the site that could benefit from increased connectivity and design potentials. (“Fall Creek Trail”)

Another predominant trail is the Monon Trail. As previously mentioned, the Monon lies on the far western side of the identified Fall Creek Site. In total, the Monon runs over 15 miles in length from the city of Carmel to downtown Indianapolis, also passing through Broadripple village. This once railway converted to greenway is perhaps one of the busiest in the nation, being used more than 1.2 million times in 2005. (“Monon Trail”) The possibilities for further connection to the Fall Creek site become endless with the Monon

literature

precedent



monon trail
indianapolis



Trail linking to it. The Monon links dozens of neighborhoods, commercial districts, schools, and parks together. The potential to even further connect it with the design of the Fall Creek site, Fall Creek Greenway, and State Fairgrounds is identified as vital to the success of the site.

Importance of Redefining the Circulation

Why is it important to create a series of connections throughout the network of car traffic, pedestrian corridors, and trail system? The fundamental aspect is that the way in which people move around an urban area determines how they function. Connections give them a physical and social structure to follow, and when that structure is disconnected, the ability and efficiency to enjoy daily life becomes compromised. (Thomas 3-10) The patterns of human activity on the Fall Creek site can be interconnected at the local scale with an improved system of pedestrian walkability, and at a larger scale, the abilities of people to come and go from the site can go beyond the car.

similar study

South Waterfront – Portland, Oregon [\[visualize the south waterfront in appendix a\]](#)

Nested on the Willamette River, the development of South Waterfront is an urban redevelopment project with accessibility and connection principles being vital to its goals. A set of guidelines was developed for the specifics of the Portland site when designing South Waterfront. Among the most relevant guidelines is: develop river edge variety, integrate ecological concepts in site and development design, consider South Waterfront’s history and special qualities, facilitate transit connections, and enhance accessway transitions. (“South Waterfront Design Guidelines”)

The last two guidelines referring to transit and accessway connections are directly applicable to enhancing the connectivity of the Fall Creek site. By establishing landscape strategies and developing greenway extensions into the site, South Waterfront was able to further enhance connections to the greenway trail. These strategies included setback areas created within the landscapes to support pedestrian and bicycle movement. And of course, the treatment of the greenways included using predominantly native plant species. One last design aspect found to develop the accessway was to develop canopy structures along these trails. These structures interact with the landscape qualities of the site and are adapted to the topography of South Waterfront. (“South Waterfront Design Guidelines”)



*The first portion of the South Waterfront design guidelines will be discussed in section 4 of the literary review, titled Innovative Strategies Along Urban Waterfronts, as they are more pertinent to the content discussed in that section.

Thoughts

After analyzing the existing site connections and comparing them with the guidelines seen in Portland’s South Waterfront, it is apparent what type of design criteria will enhance Fall Creek’s connectivity. With the surrounding community and pedestrian/bicycle features in mind, a new system of transportation can coincide with the dominant car network. By developing greenway transitions and landscape setbacks and structures, the character of the site can be more efficiently developed as a holistic network.

4 innovative strategies along urban waterfronts

I What are sustainable, innovative strategies along urban waterfronts similar to Fall Creek? I

Introduction

Waterfront designs can be distinctive in the regard that they become a feature that allows an urban setting to meet an ecological setting. It becomes a transition point for the urban public to interact with a waterfront through the use of trails, natural features, and structures. The previously discussed theme of urban ecological design will continue in this section as the driver for the design of the urban waterfront.

The purpose of this research is to analyze design techniques and case studies of similar urban settings and waterfront designs. This section of the research will establish further precedents for the Fall Creek streamfront. Specific attention will be given to design techniques that utilize both structure and landscape in a holistic fashion. This integration of structure and landscape will lead to the vision of a unique community network.

urban waterfronts

Mercer Slough Nature Park – Bellevue, Washington [\[visualize this nature center in appendix a\]](#)

With its master plan prepared by Jones & Jones, Mercer Slough sits on the beautiful and distinctive ecological outskirts of Seattle, and provides a precedent very similar to Fall Creek. Within the constraints of a sensitive wetland habitat, this park was able



to outline opportunities for educational, interpretive, and passive recreational uses in the form of trails and viewpoints. Acting as a gateway, the site also houses an educational center complex that features classrooms, a visitor center, a community building, and a unique “tree house” structure formed within the ecosystem surrounding it. All of these features were sustainably built, with everything from the materials to the functions. The sustainable aspects of this complex at Mercer Slough are extensive: special gutters, porous material, and catchment ponds slow and filter water runoff at the site; green roofs reduce impermeable surfaces and warming around the buildings; renewable, reclaimed, and local materials comprise the structure of the site; and also, sustainably harvested wood was used in construction. (“Mercer Slough”) All of these sustainable elements were designed to have minimal impacts of the surrounding environment, which contributes to its sense of place. This complex seems modern in functionality, but it feels and looks like it is actually a piece of the forest surrounding it. The feeling you receive from Mercer Slough is truly something spiritual in some senses and, again, it provides a sense of place in this Pacific Northwest park system.

Mercer Slough sits on Kelsey Creek, which is directly comparable to the fairly untouched stream corridor at Fall Creek. This ecological setting of Mercer Slough houses public amenities that will be emulated in the design of Fall Creek’s streamfront in a variety of design principles. First, and perhaps most directly applicable to the proposed functions of Fall Creek’s addition to the state fairgrounds, is the community center complex. By providing similar functions of educational, interpretive, and passive recreation, the streamfront of Fall Creek begins to resemble Mercer Slough. Also, the modern designed structures that seem to “form” to the surrounding ecosystem are similar to the proposed structures at Fall Creek, which took inspiration from biomimicry principles as well as related projects. Lastly, the design principles of Mercer Slough provide a visitor’s center and trails within the community center complex. Similarly, Fall Creek employs amenities for a variety of people within the infrastructure of the existing greenways, additional trail systems, and catering to visitors through landscape and structured spaces. Fall Creek takes inspiration from all of these elements of Mercer Slough to develop the same type of symbiotic relationship it has with the surrounding environment.

Continuation of South Waterfront – Portland, Oregon

Discussed in section three of the literary review, titled Creating Connections, were two of the five guidelines for Portland’s South Waterfront: facilitating transit connections and enhancing accessway transitions. Remaining to be discussed are two guidelines relevant to the design of Fall Creek’s waterfront: develop river edge variety, and integrate ecological concepts in site and development

design (the fifth guideline, consider South Waterfront’s history and special qualities, was covered in section two of the literary review).

The first guideline refers to a multitude of river edge strategies to develop a variety of vertical and horizontal relationships to the surrounding community. By articulating the building façades with human scale elements along the waterfront, a variety of relationships are shared between the waterfront, greenway, and buildings. Further planar relationships are achieved by creating a step down effect between the elements of the waterfront and the topography changes. By using landscape divisions inherent to the building forms, South Waterfront breaks up the building’s bulky mass to become more shared with the structure of the waterfront design. All of these achieved elements correlate to the relationship of Fall Creek’s large homes adjacent to the waterfront. By using this guideline as a precedent, the relationships of site elements in Fall Creek are strengthened to portray the same character established in this Portland waterfront design. (“South Waterfront Design Guidelines”)

The last guideline refers to integrating ecological concepts to the site and finishes the study of South Waterfront. Similar to the examined ideologies of ecological integration into the Fall Creek site, South Waterfront enhances both the urban and natural contexts of this district of Portland. By doing so, the surrounding neighborhoods develop a strong relationship with the ecological landscape. The landscape context of this area reflects its transitional nature to a highly urbanized area, lying between the forested West Hills and the Willamette River. Concentrations of indigenous plantings are juxtaposed as counterpoints to intensely urban buildings and conditions. This helps to emphasize the special qualities offered by both the structures and the landscape. Another strategy developed along the riverfront using this guideline of ecological integration is to create interior spaces that take advantage of the exterior environment. Specific functions inside a space are integrated with specific elements of the exterior. Certain spaces were designed to make use of sunlight just as other spaces were designed to make use of natural shade from trees or buildings; it depends on the specified function of the area. This allows for a multifunctional corridor that can make use of gathering spaces, passive cooling strategies, and other strategies that respond to the exterior ecology. The result is intensive human activity along the waterfront that has a balanced relationship with the ecology of the site. (“South Waterfront Design Guidelines”)

South Platte River Greenway – Denver, Colorado [\[visualize this beautiful waterfront in appendix a\]](#)

With over 30 miles of trails, parks, and other attractions, South Platte River Greenway has become a prototype for other greenways nationwide since its initiation in 1974. The river was formerly polluted, but now it thrives as a public entity and recreational



resource. Once the Denver region experienced rapid population increase in the 1990s, the river truly began its path of resurgence. This population boom is similar to that of Mapleton-Fall Creek in the early 1900s, with the site seeing major rerouting and development. (“South Platte River Greenway”)

The waterfront design features unique responses to the environment of Denver’s urban typology. The user experiences many remarkable elevational changes, winding around the waterfront and the surrounding community. These elevations change with tiers, rolling landscape features, networks of terraces, staircases, and retaining walls. Each one of these features seems to respond to the site-specific topography changes, creating a distinctive sense of space. The Fall Creek site also experiences a fair amount of topographical change between the waterway and the surrounding community. Similarly, it experiences many flat, open spaces, providing an array of areas to be designed. This site typology is related directly to South Platte in this regard, and its design attempts to obtain the same site-specific character.

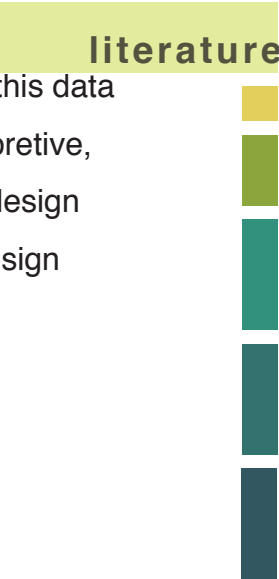
design of an urban ecological streamfront

Fall Creek Vision

The difference between the intentions for the design of the Fall Creek streamfront and other similar cases is the focus on incorporating ecological principles into urban standards. As stated previously, the Fall Creek waterway is a rather untouched ecological area surrounded by well-developed urban settings. The waterway itself has mature forest on either side. The only interventions with that forest are the greenways for pedestrians and bridge crossings for cars. Although the intention was to create an innovative streamfront along this area with urban accessibility, the overall vision relies on the fact that this can be done sustainably with intimate respect to the existing ecosystem. By using this as a vision, the design allows people to experience this community network and all of its specific uses while enjoying the ecological beauty and boundaries of the Fall Creek waterway. This vision relates back to some of the opening remarks about urban ecological design – the existing parallels of urban design and ecology are driven by both human and biophysical processes. Those principles remain true to this vision of Fall Creek as the design idea that links urban with ecological.

Final Thoughts

The elements that make up Fall Creek have a distinct opportunity to come together in an addition to the State Fairgrounds. The



literature

underlying theme behind this idea is to fuse architecture and landscape architecture into a holistic design. Specifically, this data has evaluated ways in which structure can meet the landscape in a community network that provides amenities of interpretive, contemplative, innovative, sustainable, passive, active, and educational functions. After synthesizing urban ecological design techniques, examining historical and cultural significance, analyzing connectivity strategies, and analyzing waterfront design precedents, the possibilities for fusing landscape and structure on the Fall Creek site become tangible.

goals + objectives

1 design and illustrate a network of landscape and associated structured spaces along the Fall Creek stream corridor that provides:

- o urban structures and functions that compliment, support, and improve ecological performance
- o a richer and meaningful variety of visitor spaces

2 design and illustrate provisions for connections to the surrounding communities for pedestrians.

- o incorporate the existing greenways into the proposed design.
- o create additions to the existing greenways along the stream corridor.
- o create a direct connection to the state fairgrounds from the stream corridor.

3 design and illustrate a network of landscape and associated structured spaces along the Fall Creek stream corridor that provides:

- o interpretation of historical and cultural aspects of the state fair
- o increased public amenities and functions at its important Fall Creek gateway

+ design program

ACTIVITY

PASSIVE
OVERLOOKS
EXTENDED TRAILS
CONTEMPLATIVE SPACES
WATCHING

ACTIVE
RECREATION
'CELEBRATORY'

CULTURE

PEDESTRIAN
PED BRIDGE
COMMUNITY CONNECTIONS
FAIRGROUNDS PAVILION

ECOSYSTEM

EDUCATIONAL FACILITY
ECOSYSTEM SERVICE
SUSTAINABLE SYSTEM
URBAN RUNOFF - HYDROLOGY

analysis



figure [2.1]



figure [2.2]

site orientation

The site is situated along the Fall Creek waterway on the northeast side of Indianapolis. The waterway is 57.5 miles in total length before it drains into the White River. The master plan encompasses 2.04 miles of the waterfront.



figure [2.3]



project vision

The vision for Fall Creek is a modern expansion of George Kessler’s initial vision. The corridor begins in downtown Indianapolis at White River Parkway, which is currently developed and pedestrian friendly in many locations. Local organization ‘Destination Fall Creek’ offers an initial vision for a project that expands it’s horizons all the way to North Skiles Test Park in the future. This thesis focuses on the area adjacent to the Indiana State Fairgrounds for just one phase of a grander scheme.

analysis

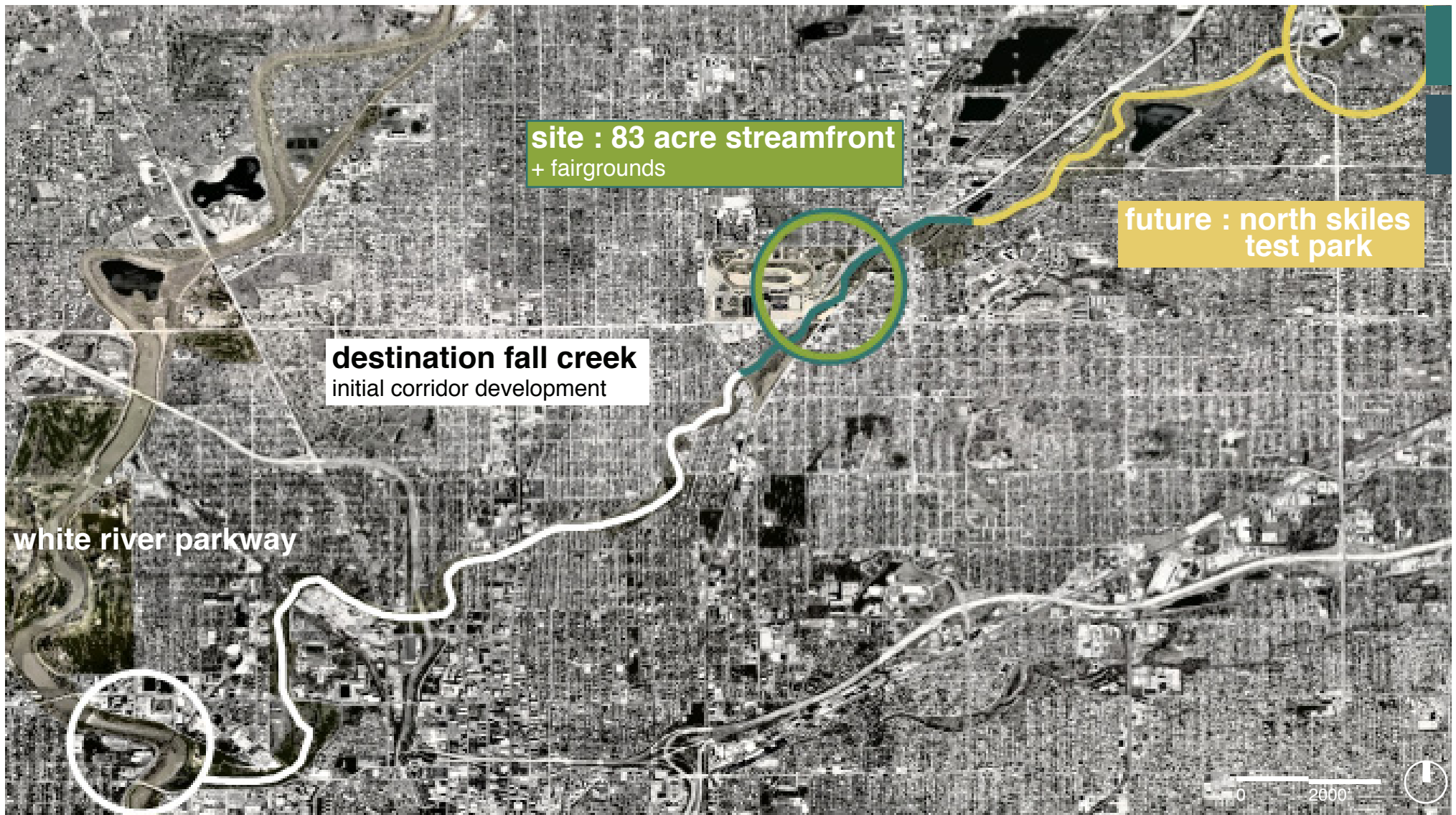


figure [2.4]

site inventory

Fall Creek is the epitome of an ecological corridor juxtaposed between an intensely urban setting. The wide variety of urban and ecological elements provide an array of opportunity in the social, economic, and environmental paradigms. By responding intimately to the ecological needs of the stream corridor, a new public amenity can be the prototype for a fusion of urban ecology.

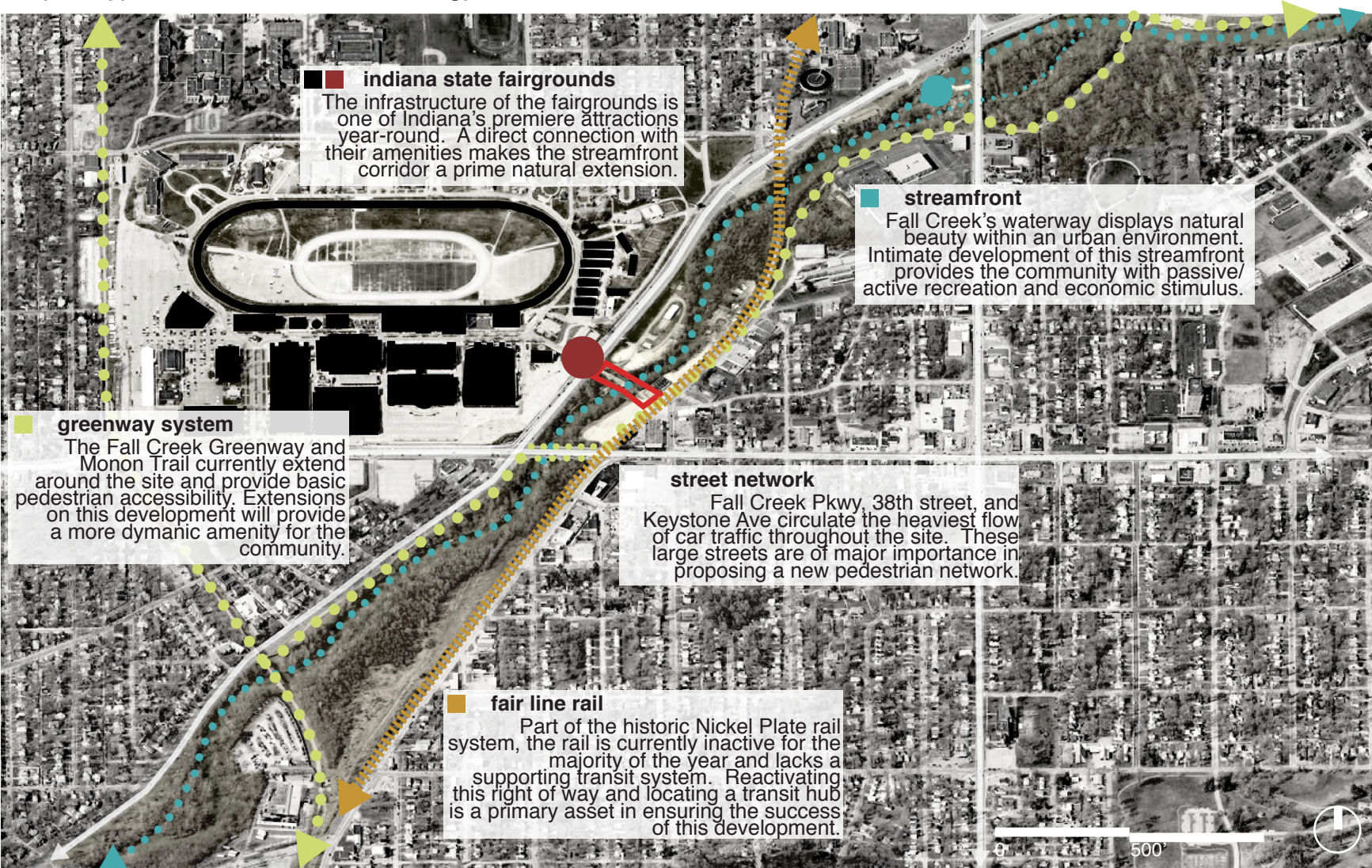


figure [2.5]

ecological zones

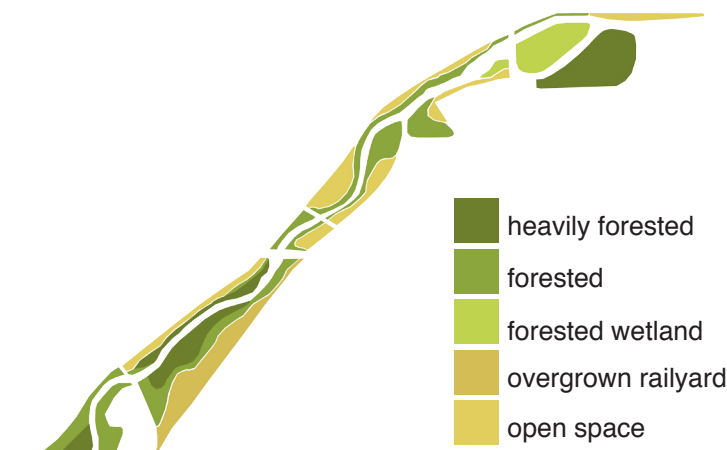


figure [2.6]

slope mapping

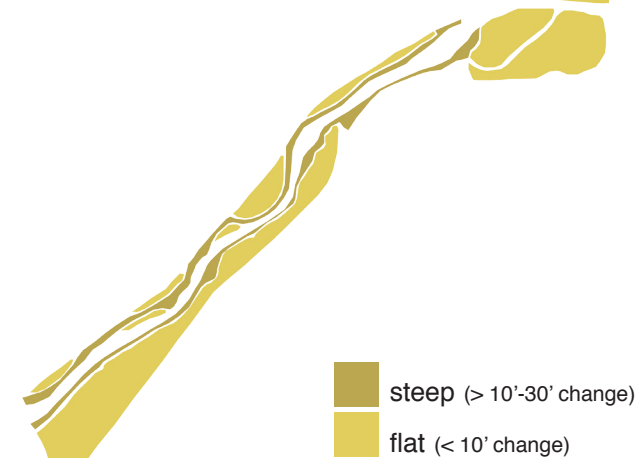
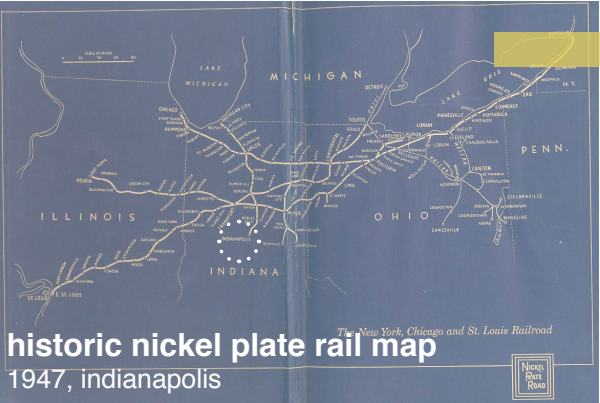


figure [2.7]



precedent

analysis

land use

Blending surrounding land uses into the scheme for the stream corridor is a primary challenge that affects the dynamics of the design. Fall Creek's rich history has influenced the rapid development of this area, and this project fuses all of the site's major elements together cohesively in an urban ecological corridor.

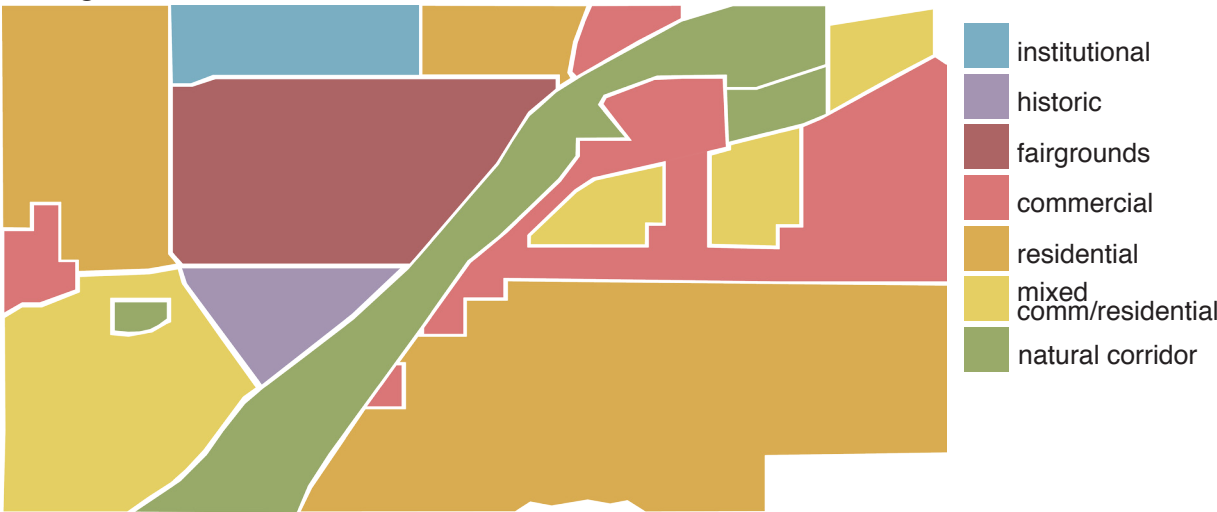


figure [2.8]

site analysis

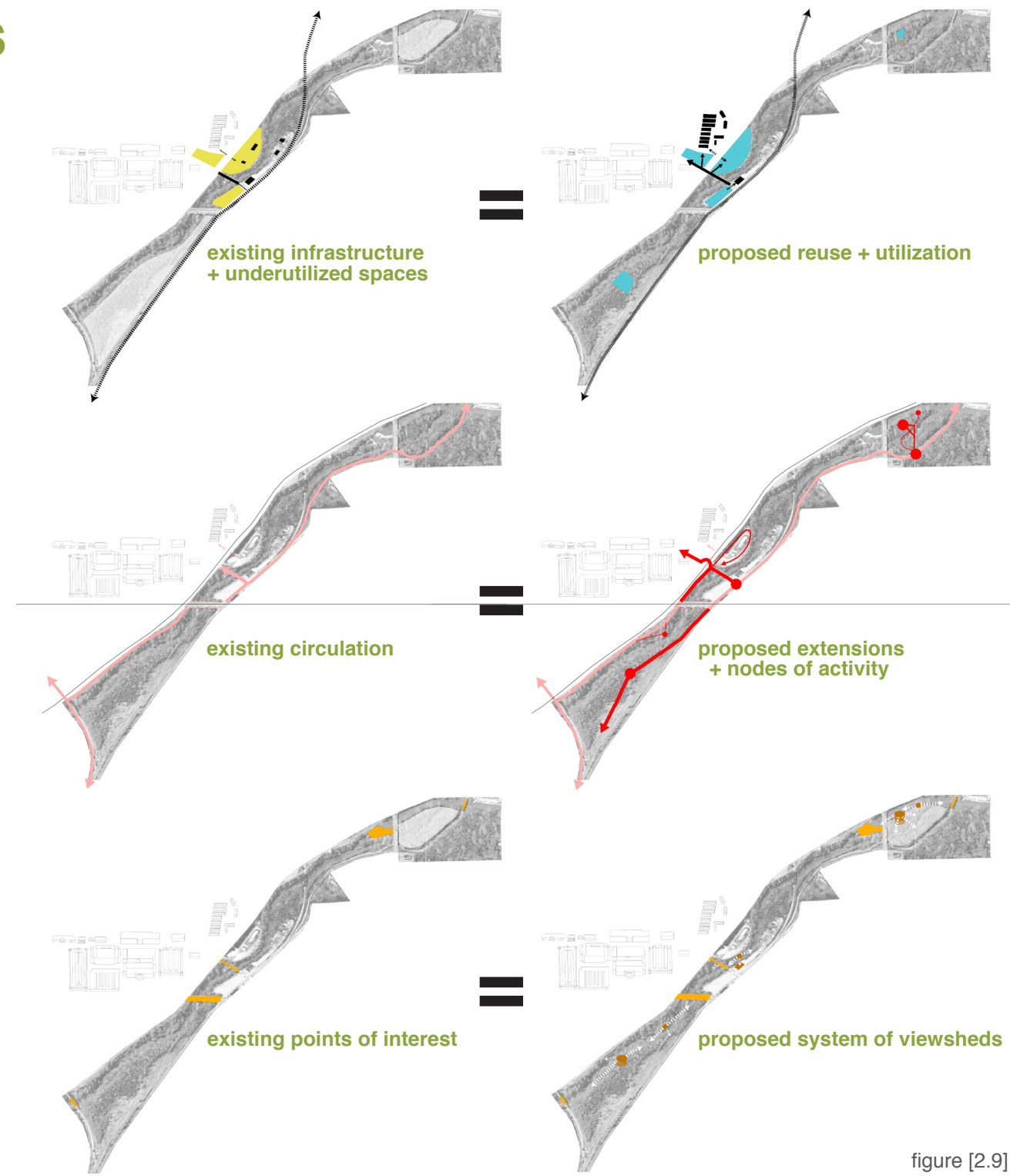


figure [2.9]

terrain typologies

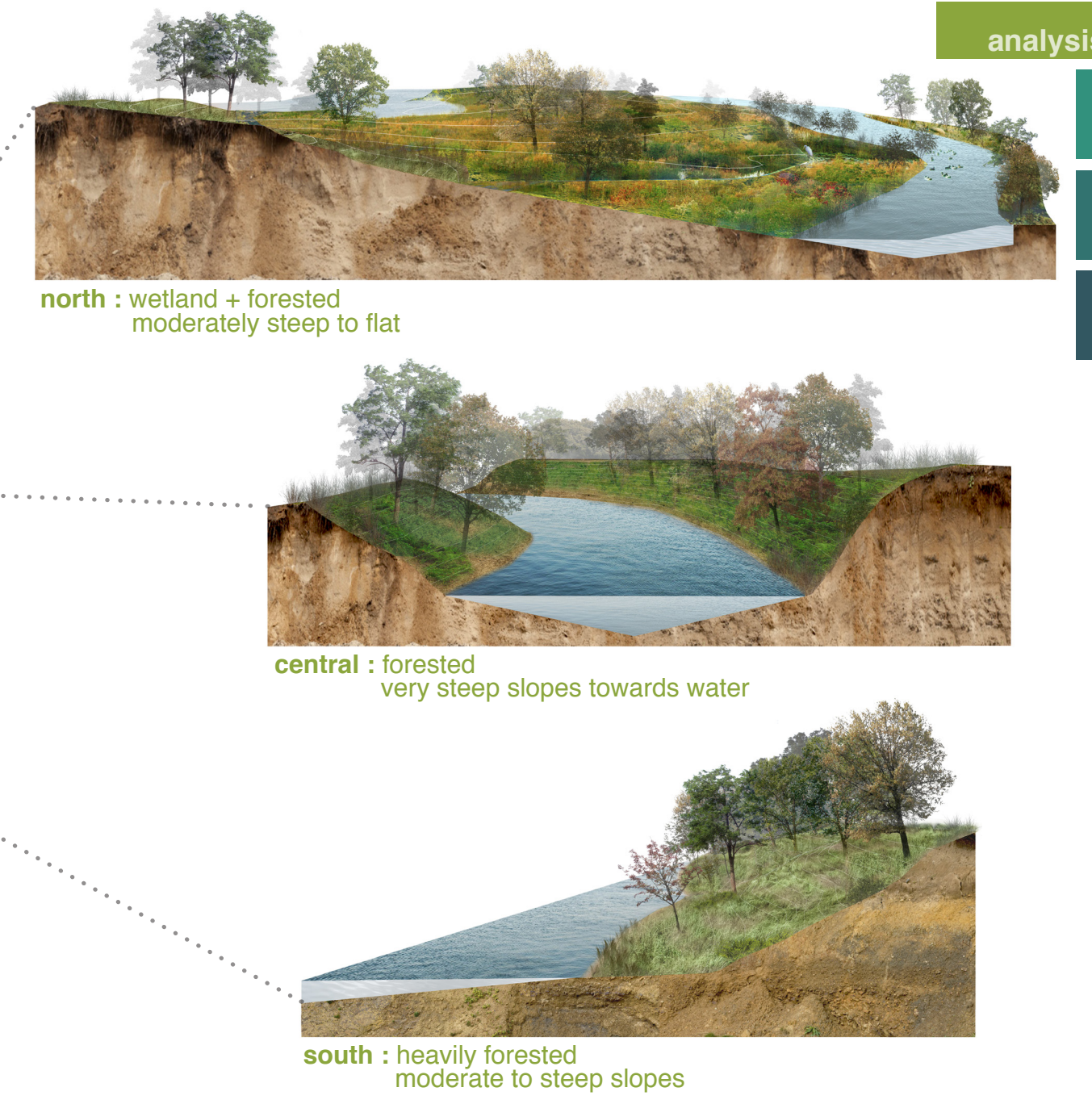


figure [2.10]

response to existing conditions

The existing site has a variety of conditions that can be utilized if responded to intimately. Analysis of the dynamic terrain qualities, underutilized infrastructure, and existing system of pedestrian circulation results in the proposal of a more complex system of activity.

concept



- agriculture + livestock**
'hoosier roots' in seasonal activities
- education**
4H complex, Habitat for Humanity, local university involvement
- consumer and entertainment entities**
Pepsi Coliseum + others
- activity**
events, sporting, recreation

use the existing amenities of the **urban context**

to inform an addition in the **natural context**

concept vision

The concept envisions an extension to the Indiana State Fairgrounds by identifying the existing urban amenities and proposing a new system of natural amenities in the stream corridor.

- terrain
- streamfront
- greenways
- open space
- forest



figure [3.1]



figure [3.2]

fall creek greenway

The concept proposes trail extensions throughout the site to expand the greenway between new features and amenities.



figure [3.3]

rv park + underpass

The central site adjacent to the fairgrounds currently houses an rv park, which is underutilized for the majority of the year. By relocating the rv park to one of the various other vacant locations, this site becomes a gateway feature along the streamfront.



figure [3.4]

38th street infrastructure

The close proximities of the rail, greenway, vacant lot, and 38th street all merge at an abandoned building, providing opportunity for a transit stop.

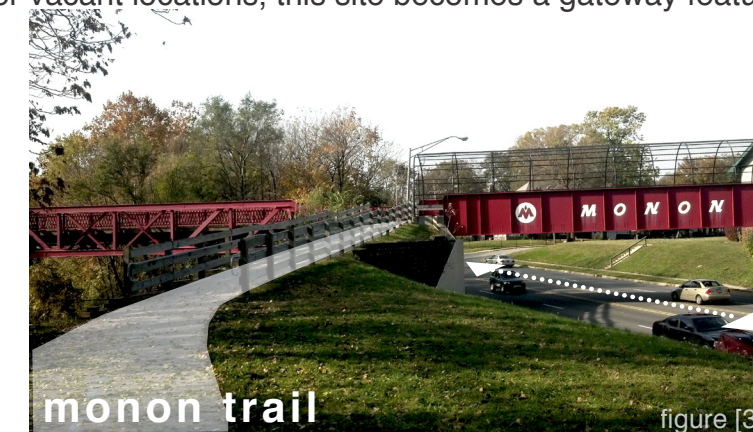


figure [3.5]

monon trail

The Monon is used by 4,000 people daily and offers 16.7 miles of trail between Indianapolis and Westfield, so this becomes a critical trailhead connection.

master plan

transit system figure [4.1]



contextual development



The master plan is an amalgamation of all the site and contextual analysis of Fall Creek. This proposes a comprehensive design based in a unique urban ecological setting. The site is split into three detail design areas with three secondary detail areas. The primary detail design areas are in the north, central, and south quadrants with the central quadrant acting as the transitional gateway between the fairgrounds and the streamfront. The secondary areas of detail include three overlook structures, all with similar multi-leveled forms. All in all, the master plan achieves innovation with new views, connections, and amenities for the Fall Creek community with a new economic stimulus in mind.



- A WETLAND PARK
- B NORTHERN OVERLOOK
- C OBSERVATION TOWER
- D FALL CREEK GREENWAY
- E RAIL
- F FAIR LINE STATION
- G PARKING
- H FAIRGROUNDS HORSE STABLES
- I UNDERPASS
- J EQUESTRIAN TRAILS
- K STREAMFRONT PARK
- L CENTRAL OVERLOOK
- M MULTI-LEVEL PEDESTRIAN BRIDGE
- N GATEWAY CAFE
- O FAIRGROUNDS PAVILION
- P SOUTHERN OVERLOOK
- Q FALL CREEK EDUCATIONAL FACILITY
- R MONON TRAIL

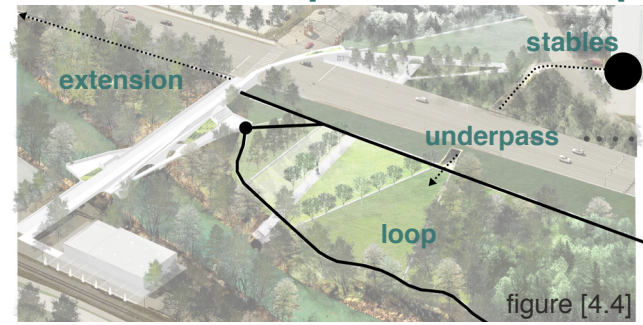


central gateway

connecting urban + ecological

The design of the central site acts as a gateway between the fairgrounds and streamfront, inextricably tying together the most vital pieces of the site. Reactivating the rail and reusing the abandoned adjacent building promotes bringing users into the site in the future through sustainable transit. The multi-level pedestrian bridge is the threshold that connects the sites while solving the issue of traffic across Fall Creek Parkway. And lastly, the variety of public spaces expands on the fairgrounds with innovative new amenities along the streamfront.

equestrian loop



seasonal public amenities

The main purpose of the new public amenities is to provide the community with seasonal variety throughout the streamfront. This central space in particular also taps into Fall Creek's rich history in two ways: it displays the notion of a modern expansion on George Kessler's initial vision for Fall Creek; and, it functions as an equestrian loop, not only utilizing the space that was once a watering hole for horses traveling between Broadripple and Indianapolis, but also activating further connections with the fairgrounds horse stables to the streamfront.

fairgrounds + corridor

design



multi-level pedestrian bridge

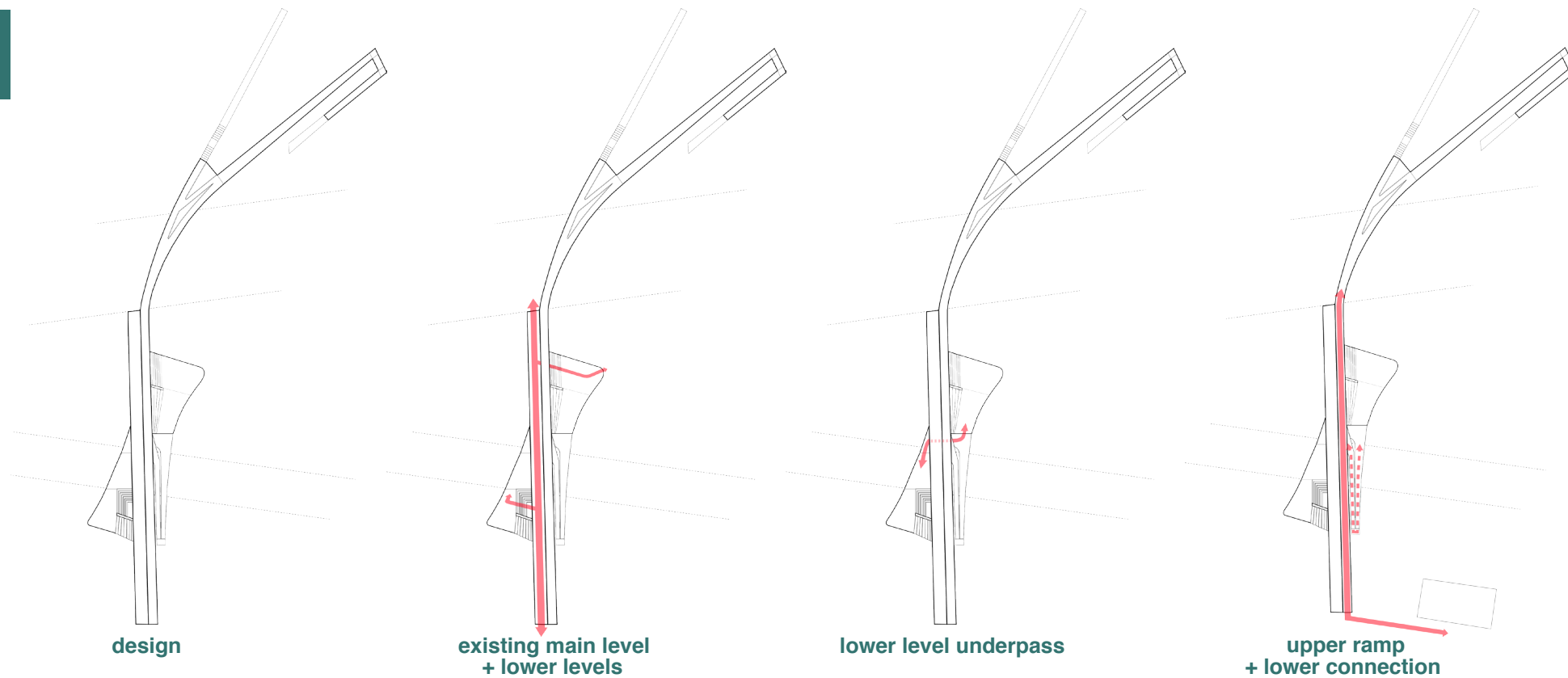


figure [4.6]

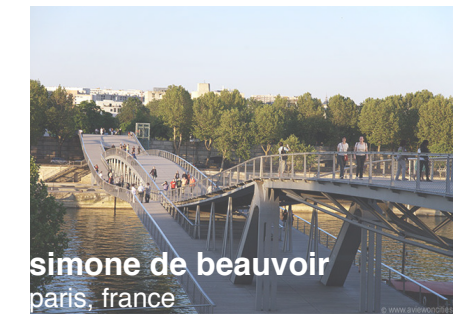
landform + fluidity

The multi-level pedestrian bridge is proposed as the iconic piece of the entire design of the site. The design responds to the existing pedestrian bridge by intimately proposing new multi-level connectivity. It connects the reactivated rail, new rail station, streamfront design, and fairgrounds together with fluid motion. The bridge itself responds to the specific landforms of the site to allow the pedestrian a variety of ways to move throughout and overlook areas of the water.

activated at night



figure [4.7]



precedent

design



wetland park

creating viewsheds

The northernmost region of the site offers a unique mesh of forest and wetland. This design proposes the most naturalistic experience for the user, with a variety of trails branching off of the Fall Creek Greenway leading up to an observation tower and overlook structure. These two structures offer some of the best viewpoints of the entire site and activate a pedestrian experience throughout dense forested wetland. The design of the tower takes on the natural geometries of the site, expressed with more radical angles that maximize viewsheds. The tower's circulation is integrated with a series of boardwalks and canopy walks that allow the user to utilize the site even when nature has taken over and flooded the wetlands.

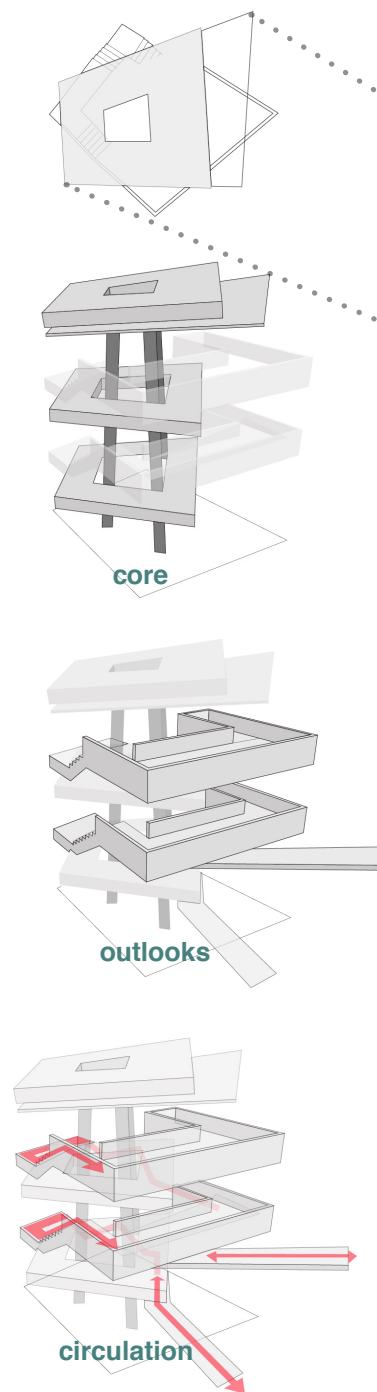


figure [4.8]

observation tower + canopy



figure [4.9]



qunli stormwater park
heilongjiang province, china

precedent

design



structure in nature

This view offers a perspective of the space in mid-summer. The boardwalks wind through wet and marshy conditions, eventually meeting up with a canopy walk that elevates the experience directly through mature forest and meets up with the tower. This innovative design demands passersby from Keystone or Fall Creek Parkway to acknowledge this structure and ask the question “What is that structure hovering over the canopy? I need to see what’s going on at Fall Creek...”

figure [4.10]



northern pedestrian bridge



ped bridge outlook



FCG seating area



wetland area near path

site visualization

Surrounding the forested wetland area is an existing infrastructure that includes the Fall Creek Greenway and to the north a pedestrian bridge that crosses the stream. The proposed design seamlessly integrates itself into this existing framework, adding a diverse extension of trails and structures. This proposal opens up the northern end of the site to natural beauty and wildlife with elevated viewpoints. [Future implications of this proposal lead to sustainable use of the wetland to rid the waterway of toxins, runoff, and erosion]

wetland park



figure [4.11]

fall creek ecological center



facility character



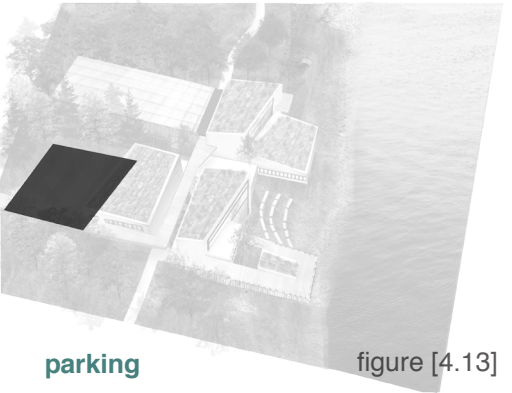
figure [4.12]



ground access



aerial access



parking

figure [4.13]

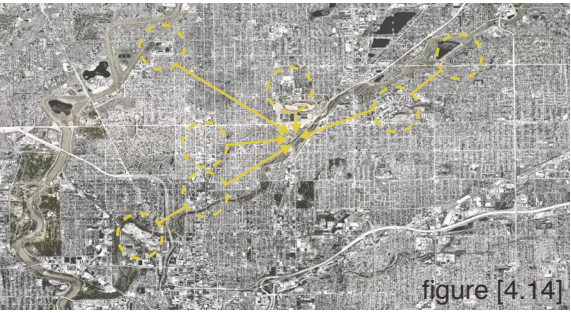


figure [4.14]

contextual connections

The facility becomes an asset to the surrounding educational institutions. These include a variety of grade level, collegiate level, and community organizations that are in proximity of either the streamfront or a greenway.

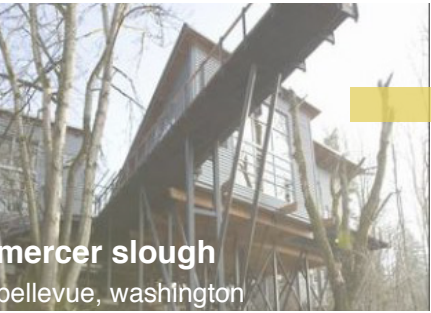
education + function

The southernmost region of the site display's a 'Mercer Slough-esque' educational facility with a variety of functions and connections to the existing educational infrastructure of Fall Creek. The design of the facility again responds to the landforms of the site. Nestled in the forest, it slopes it's way down towards the water, opening up another vantage point for users. Viewsheds, eco-classrooms, and green roofs offer an outdoor experience that users of any age can enjoy. The conservatory offers Indiana a research facility that can display native plants, exotic plants, and experimental opportunities. Also, a canoe/kayak launch based in the visitor's center promotes water activity and a new way for Fall Creek users to experience the streamfront.



figure [4.15]

natural influence in building typology



mercator slough
bellevue, washington

precedent

design



overlook structure



figure [4.16]

conclusion :

Fall Creek is certainly a special place, and many people are not able to see it's full potential in the current state. This thesis project accomplishes the first phase in activating a corridor that encapsulates much of Indiana's history. The design program for this project advocates three things: activity, culture, and ecosystem. Passive and active spaces were proposed in the form of overlooks, extended trails, recreation, and contemplative spaces. The culture of Fall Creek was envisioned through the creation of a more vibrant pedestrian experience and connections to the history of the area. This culture becomes iconic throughout the corridor with a new multi-leveled pedestrian bridge, a fairgrounds pavilion, and an observation tower. The natural ecosystem experiences new amenities that allude to a sustainable future for Fall Creek. The educational facility is an initial community asset that begins to educate people and spur public movement towards more sustainable infrastructure.

From a broader perspective, this project based it's roots in the vision of blurring the distinction between urban and ecological realms. By proposing a fusion between structural and landscape relationships, the design proposes innovation for the field of landscape architecture.

: activity

: culture

: ecosystem

series of viewsheds

This view shows the southernmost of 3 landform structures that overlook the streamfront. These structure were strategically located in areas that offer the most sensational views towards the stream and historic Kessler bridges. They also integrate the most dynamic typographies of the site with multi-level forms.

planting list

common name	botanical name	soil	benefits
woodland			
Shagbark Hickory	<i>Carya ovata</i>	moist	shade, produces food for variety of wildlife
Swamp White Oak	<i>Quercus bicolor</i>	moist to wet	tolerates floodplain, attracts wildlife
Columbine	<i>Aquilegia canadensis</i>	dry to moist	aesthetics, attracts wildlife
Solomon's Seal	<i>Polygonatum biflorum</i>	moist to wet	erosion control, attracts bees
Witchhazel	<i>Hamamelis virginiana</i>	moist	winter bloom interest, fall color
Woodland Sedge	<i>Carex blanda</i>	dry to moist	erosion control
Marsh Fern	<i>Thelypteris thelypteroides</i>	wet	forest cover
evergreen			
Eastern Red Cedar	<i>Juniperus virginiana</i>	dry to moist	erosion control, attracts wildlife, seasonal
White Pine	<i>Populus deltoides</i>	very tolerant	attracts wildlife, seasonal
prairie			
Little Bluestem	<i>Schizachyrium scoparium</i>	dry	erosion control, water quality control
Prairie Cordgrass	<i>Spartina pectinata</i>	moist to wet	stream restoration
Tussock Sedge	<i>Carex stricta</i>	moist	erosion control
Rough Blazing Star	<i>Liatris aspera</i>	dry, mesic	aethetics, attracts butterflies + birds
Smooth Phlox	<i>Phlox glaberrima</i>	moist	fragrant, attracts butterflies + birds
wetland			
Willow	<i>Salix sp.</i>	moist to wet	stream restoration, attracts wildlife
Creeping Spikerush	<i>Eleocharis palustris</i>	wet	attracts wildlife
Soft Rush	<i>Juncus effusus</i>	moist to wet	erosion control, provides habitat for wildlife
Bulrush	<i>Scirpus sp.</i>	wet, flood	water quality, provides habitat for wildlife
Bristly Sedge	<i>Carex comosa</i>	wet	erosion control, stream restoration
Fox Sedge	<i>Carex vulpinoidea</i>	wet	stream restoration
Water Plantain	<i>Alisma subcordatum</i>	wet	attracts wildlife, flowery

figure [5.1]

planting dynamics

water quality

Perhaps the most important aspect of this plant selection is in regards to the water quality of the corridor. The waterway is a major collector of more than 20 CSO's. Revamping the wetland site results in natural filtration of toxins, urban runoff, and stormwater.

erosion control

The site is a very steep riparian corridor. Controlling the erosion issue is vital to biophysical processes, including both anthropologic and wild life. Strategic use of rushes, sedges, grasses, and the eastern red cedar results in beneficial, non-erosive site qualities.

native colonies

The Fall Creek corridor is notorious for invasive honeysuckle colonies. The proposed plant list includes only native plant colonies that interconnect to rid of invasive plants and support healthy activity.

aesthetics

In order to achieve sustainability in social equity, the plan also caters to aesthetic beauty. The public spaces and amenities propose natural integration, so the aesthetic quality ensures that people want to use the site and come back seasonally to view the course of nature.

habitat

All of the selected plants propose natural benefits to different areas and typologies of the site. In order to mitigate the proposed structural designs, an integration of habitat offers shelter and food for wildlife + a natural display for people. The planting plan caters to forest, wetland, and prairie habitats with seasonal endurance in mind.

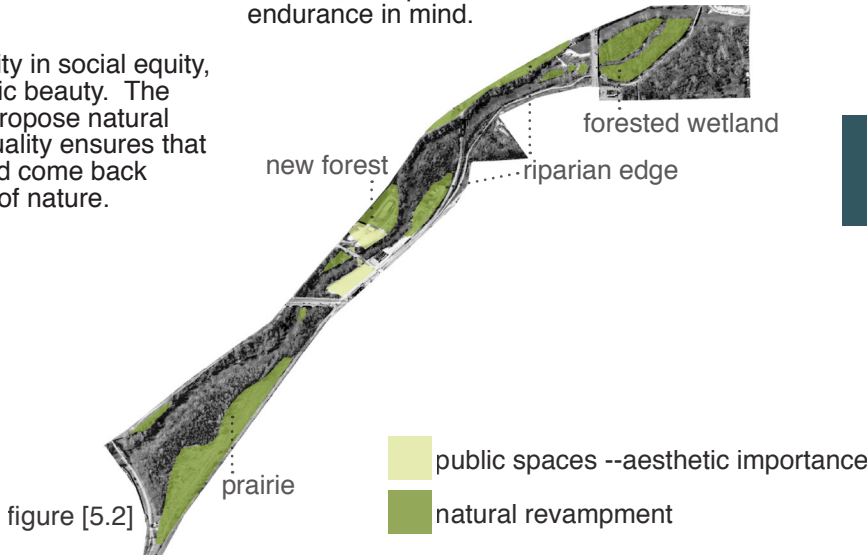


figure [5.2]



figure [5.3]

planting



figure [5.4]

south platte river greenway denver, colorado

This project is one of the most dynamic public spaces in the U.S. Denver found a way to integrate the greenway system, public amenities, and landscape features with a waterfront, which is very similar to the vision for Fall Creek.



figure [5.6]

qunli stormwater park heilongjiang province, china

Qunli is a great example of a sustainable park on an absolutely massive scale. This project inspired the use of sustainable infrastructure as well as meshing different materials in unique ways.

appendix a

case studies



figure [5.8]

archipelago house stockholm, sweden

This structure inspired the project to go in the direction that it did. The way that the geometrically sound angles lead into the surrounding natural landscape is stunningly beautiful.



figure [5.10]

simone de beauvoir paris, france

A pedestrian bridge acts as a central node and can define the circulation of an entire site. This bridge was a primary case study for the design of the multi-leveled bridge in the central gateway.



figure [5.5]

mercier slough bellevue, washington

Mercer Slough was the key precedent study for the educational component of Fall Creek. This place incorporates trails and an educational facility that resonate great design.



figure [5.7]

south waterfront portland, oregon

Portland in general is an inspiring place when designing for water. South Waterfront was a primary tool for the research principles of this thesis.



figure [5.9]

ring house karuizawa, japan

The Ring House seems to evolve with whatever atmosphere surrounds it on any particular day. Fall Creek aspires to do the same with the always unpredictable weather of Indiana...



figure [5.11]

providence river pedestrian bridge providence, rhode island

This bridge provided inspiration to strive for a design that not only maximizes pedestrian accessibility, but also aspires to be beautiful and respond to landform.

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